Modern Concepts of Cardiovascular Disease

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RHEUMATIC FEVER

The association of heart disease with the polyarthritis of rheumatic fever has long been recognized. Since 1888, we have understood that the joint symptomatology was a relatively unimportant feature of the disease. In this respect, it may be pointed out that in recent years the widespread nature of the disease process has been studied by pathologists. In fact, Rheumatic Fever may be described as a disease of the general circulatory system. The symptoms indicative of the active disease process must hence be broadened, in view of this conception of the generalized nature of the pathological changes.

The medical profession is aware of the close association between streptococci and Rheumatic Fever. Since the beginning of this century, several reports have appeared claiming the discovery of a specific etiological agent, usually some strain of the streptococcus. No single specific strain, however, has as yet been proved to be the etiological agent. There is a large volume of evidence suggesting strongly that the disease is one of hypersensitiveness to the products of streptococci. As a result of sensitization to streptococcal products, due to repeated infection or foci, the involved tissues over-react to small amounts of the injurious agent. The hemolytic streptococcus has received much attention recently. There can be little doubt but that hemolytic streptococci appear in the throats during the upper respiratory infection (coryza, tonsillitis, pharyngitis, etc.) which usually precedes the development of rheumatic fever or a recurrence of the disease. The organism may or may not be present after the onset of the actual rheumatic fever. It is possible in practically all cases to obtain a history of preceding respiratory infection if the history be obtained early, but, if the infection be mild, it is quickly forgotten by the patient. This upper respiratory infection occurs as early as three weeks prior to rheumatic fever. There are three forms of rheumatic fever. The monocyclic form is more likely to occur in adults, and may result in the development of no demonstrable heart disease. The disease is of relatively short duration and is characterized by migratory polyarthritis, fever, leucocytosis, and sweating. Pleuritis and carditis may occur simultaneously. The polycyclic form represents a repetition several times, rather close together, of the monocyclic form, with a decided tendency to show heart involvement more often during the successive illnesses. The continuous form is very varied indeed in its manifestations and offers any group of combinations of the varied symptomatology to be found in the disease. Many such infections last from months to years, and few escape developing demonstrable evidence of cardiac damage. By far the greater amount of rheumatic fever occurs between the ages of five and fifteen years. There is also some variation in symptomatology between the disease in children and in adults. In the adult, the joint symptoms are usually more pronounced and the disease less likely to be of long duration. In the child, there is usually found carditis at an early stage, the joint symptoms are often absent or mild, and the process tends to last a longer period of time.

The insidious nature should be stressed for it is common to find the rheumatic type of heart disease without previous rheumatic history, or at least with a meager one. The development of various manifestations of carditis in a child following an upper res-

piratory infection, fever of undetermined origin, prolonged abdominal pain often simulating appendicitis, or frequent epistaxis, clearly show the variety of forms by which the active process in this disease may indicate itself. Joint pain, fever, chorea, and carditis (endocarditis, pericarditis, myocarditis) are universally accepted as denoting the presence of rheumatic fever. To these must be added a number of other findings such as epistaxis, subcutaneous nodules, various forms of exudative erythemata, leucocytosis, precordial pain, persistent vomiting, sweating, abdominal pain, persistently elevated pulse rate, hematuria, failure to gain weight if undernourished, prolongation of the auriculo-ventricular conduction time by electrocardiogram, and increased sedimentation rate of the red blood cells. Fever as an evidence of active disease may be extremely low-grade. While the above symptomatology in a normal child or adult does not convict him of rheumatic fever, the occurrence, usually several combined, in an individual with a previous history of rheumatic fever or with rheumatic heart disease, indicates that rheumatic fever is active. This diagnosis is justified despite the mildness of symptomatology. In a few of the acutely ill patients, pulmonary consolidation of a migratory and transitory nature may be found. It has been pointed out that acute nephritis in a rheumatic patient is equivalent to a recurrence of rheumatic fever. Similarly, scarlet fever usually results in a rheumatic fever recurrence.

It is chiefly among the industrial classes that the disease occurs. For many years this has been recognized. Environment has been considered almost as important as the unknown etiological agent. The association of poor hygiene and damp, sunless, overcrowded living quarters has been widely recognized. The disease is known also to occur frequently among immigrants. It would seem possible that the environmental factor of most importance is that related to respiratory infection. It has been pointed out that individuals living in crowded, poorly ventilated houses probably have more respiratory infection than those able to afford better hygiene. The spread of infection through such families, and the development of heart disease in more than one member of the family has been recently studied. At times one finds varied symptoms of rheumatic fever among members of the family simultaneously. For some time it has been recognized that rheumatic fever and rheumatic heart disease were as common in more than one member of a family as was tuberculosis. Hereditary factors are being considered at present, but no conclusive evidence has been presented. Infection and environment are doubtless very important, but one may inherit some predisposition to develop sensitization phenomena.

The geographic distribution of rheumatic fever is widely known. In the United States, it is more common in the northern section of the country. There is a definite diminution in the frequency of the disease as one proceeds southward. It is probable that the signs and symptoms of the disease also become milder and more atypical in those regions in which the disease is less common. It has been shown that patients with rheumatic fever, when transported to the South, recover from it more rapidly than in their native habitat. The rheumatic heart disease present, of course, is persistent. Such experiments have been performed in Porto Rico and Florida. It is possible that the low incidence of respiratory infection in these regions may be the factor of importance.

There is considerable annual variation in the number of rheumatic fever patients and of the recurrences. The severity of the majority of the signs and symptoms also varies somewhat from year to year. While there are periods in the year when rheumatic fever does not occur, the large percentage of cases occur in this country from February to June. Slight annual variations as to incidence within these months do occur. In England, the seasonal incidence is greater in the autumnal months.

During the past quarter of a century the symptoms of rheumatic fever have undoubtedly changed somewhat. There are decidedly few cases of migratory polyarthritis seen in general hospitals. Despite this, the amount of rheumatic heart disease continues high, and the resulting deaths do not seem to have been curtailed. Two factors seem likely to have some part in this alteration, namely, the widespread removal of tonsils, and the universal use of salicylates by the lay public for all the ills of the flesh.

It may be well to emphasize the fact that prognosis, especially in the juvenile forms of rheumatic fever, is dependent largely upon the frequency of the recurrences of rheumatic fever. That the symptoms of these recurrences are varied and often low-grade should be impressed. In this relation careful attention should be paid to upper respiratory infections, since the symptoms of a recurrence generally are preceded by such an infection. In this way, prognosis is often influenced by the frequency of these respiratory infections. Except in the severer forms of rheumatic heart disease, the attempt to determine the extent of heart damage is of less importance than the determination of the presence or absence of rheumatic fever. If the process is an active one, a diagnosis of rheumatic fever is justified despite the duration of the disease or the variety of the symptomatology.

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